

b1 semiconductor layer of which an energy band gap is made narrower inside than both ends by making a peak of distribution of one constituent element exist in the inside except the both ends in a thickness direction and doped with an impurity;

a barrier layer formed on the graded channel layer;

a gate electrode formed on the barrier layer to come into Schottky-contact with the barrier layer; and

a source electrode and a drain electrode formed on both sides of the gate electrode to flow a current into the graded channel layer via the barrier layer.

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